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Editorial

USE OF 'VACCINE VIAL MONITOR' IN ALL ANIMAL AND BIRD VACCINES – A DEMAND OF THE DAY

Vaccination is the best way for prevention and control of infectious diseases. Starting from the experiments of Luis Pasteur, we have crossed many milestones to reach the present day status of vaccination. Many dreadful diseases of the past are in the history now-a-days for the constant research and development in the field of Vaccinology. But we are not at the position to control some diseases in our country in spite of development of excellent vaccines against them. There are many reasons behind this, but failure to maintain cold chain is the main reason which lies between the production and the use of the vaccines.

During 1979, World Health Organization (W.H.O.) conceived the concept of Vaccine Vial Monitor, where p- toluenesulfonate was used as the chemical for the purpose. Research, trial and discussion was going on and during 1988, a new type of chemical, di acetylene polymers came in the field with better performance. India urged WHO for assistance in supplying Vaccine Vial Monitors (VVM) on locally produced Oral Polio Vaccine during 1996. In 1999, WHO and UNICEF issued a joint statement advocating the use of VVMs on all vaccines. WHO hold a regional meeting on 2003 with vaccine manufacturers in New Delhi to accelerate expansion of use of VVMs. In 2006, WHO issues new Performance, Quality and Safety (PQS) product specifications and verification protocol for Vaccine Vial Monitors.

Vaccine Vial Monitor is actually a colored circle with a very faint colored square inside it. The inner square of the VVM is made of heat sensitive material that is light at the starting point and become darker with exposure to heat. At the discard point of a vaccine vial, the inner square is the same color as the outer circle. This reflects that the vial has been exposed to a level of heat so that the vaccine degraded beyond acceptable limits. The inner square will continue to darken if get further heat exposure.

Four types of VVM are available to use them either on the label or on the top of the cap or on the neck of the ampoules depending on the type of vaccine (liquid or freeze-dried).The comparative efficacy of the Vaccine Vial Monitors is as follows.

Category (Vaccines)	**No. of days to end point at 37^{0}C**	**No. of days to end point at 25^{0}C**	**Time to end point at 5^{0}C**
VVM 30 (High stability)	30	193	More than 4 Years
VVM 14 (Medium stability)	14	90	More than 3 Years
VVM 7 (Moderate stability)	7	45	More than 2 Years
VVM 2 (Least stability)	2	N/A#	225 days

Not Available

* Source : WHO website

Human health is not protected if the health of the animals and birds are not protected. Agents of many zoonotic diseases may cross the species barrier in various ways to infect and even to bring epidemic among human population.

If we consider the vaccination of animals and birds, we can easily assume that the chances of failure of vaccination among the animals and birds reared in the backyard farms is far more than human vaccines due to the reasons of transport of vaccines to the door of the farmer and relatively poor cold chain facility in the concerned field. Use of a degraded vaccine on any animal or bird can cause many serious types of problems like false certification, acceleration of spread of disease, reaction of chemicals of degraded vaccine etc. So, use of Vaccine Vial Monitor is very much important in the field of vaccination of animals and birds. The subject needs serious and immediate consideration, otherwise it will appear like that the boon of science is with us, but we are not ready to accept it.

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